

Presentation at MSI Town Hall Series Capstone Event

Defense Research Capacity at Historically
Black Colleges and Universities and Other
Minority Institutions: Transitioning from
Good Intentions to Measurable Outcomes

June 9, 2022

DEFENSE RESEARCH CAPACITY at Historically Black Colleges and Universities and Other Minority Institutions

**TRANSITIONING FROM GOOD INTENTIONS
TO MEASURABLE OUTCOMES**

Study Sponsor



U.S. Department of Defense

Charge to the Committee

An ad hoc committee under the oversight of the Board on Higher Education and Workforce (BHEW), will undertake a study to examine the status of Department of Defense research at Historically Black Colleges and Universities (HBCU) and other Minority Institutions (MIs), and the methods and means necessary to advance research capacity at covered institutions to comprehensively address the national security and defense needs of the United States. The study shall include an examination of each of the following:

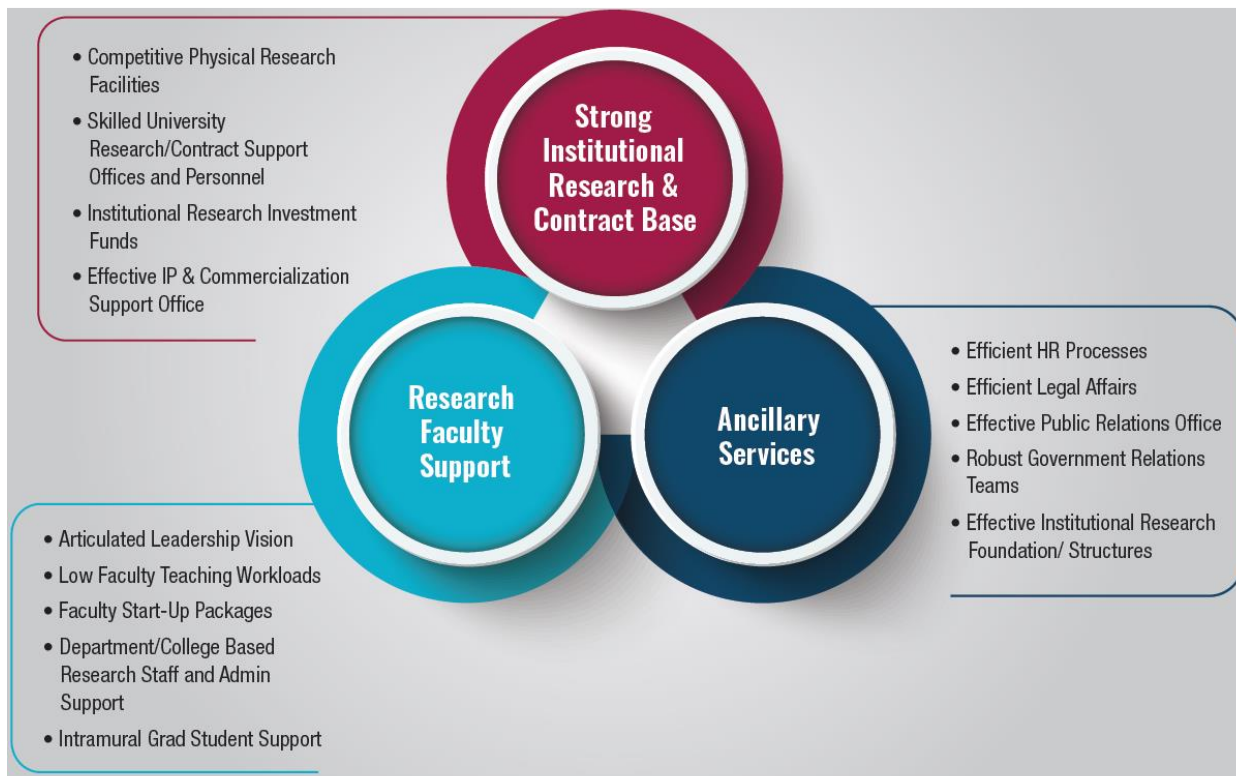
1. The degree to which covered institutions are successful in competing for and executing Department of Defense contracts and grants for defense research.
2. Best practices for advancing the capacity of covered institutions to compete for and conduct research programs related to national security and defense.
3. Recommendations for strengthening and enhancing the programs executed under Section 2362 of Title 10, United States Code.
4. The effectiveness of the Department in attracting and retaining students specializing in science, technology, engineering, and mathematics fields from covered institutions for the Department's programs on emerging capabilities and technologies.
5. A list identifying each covered institution examined as part of the study.

Notable Point in Study Scope

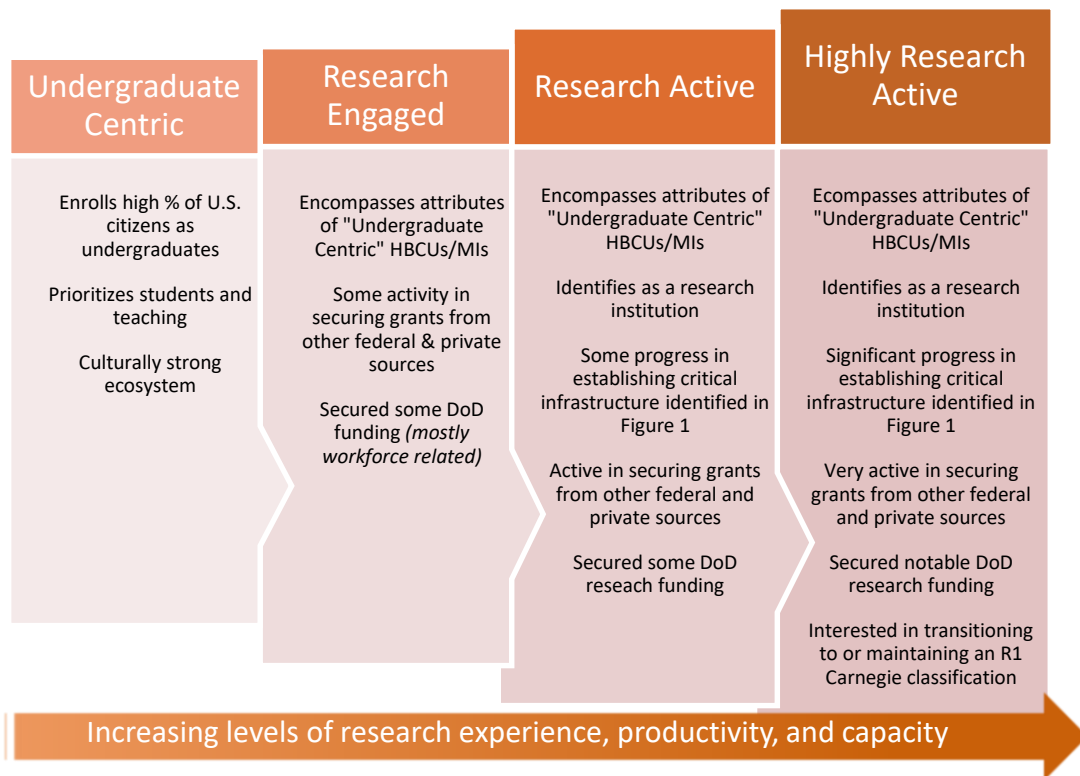
- Definitions of Minority Institutions (MIs) vs Minority Serving Institutions (MSIs)

Research Frameworks and Conclusions

Framework to Assess Institutional Research Capacity at HBCU/MIs



Framework to Assess Spectrum of Research Capacity at HBCU/MIs



Overarching Research Conclusions

- A strategic commitment with long-term targeted investments is needed from within the USD(R&E) to increase research capacity at HBCU/MIs to more successfully compete for and execute DoD awards. Long-term additional investments are needed in research infrastructure, personnel, and programmatic support.
- There is insufficient data collection, inter-departmental program coordination, long-term records, and a lack of quantitative evaluations to appropriately assess DoD's total investment and measurable impact on the advancement of HBCU/MI research capacity.

2022 Final Report Recommendations

*Methods and Means to Increase Defense Research Capacity
at HBCU/MIs*

Increase Funding for Capacity Building at HBCU/MIs

- **RECOMMENDATION 1A:** DoD entities with responsibilities to establish or increase DoD-relevant research capacity at HBCU/MIs should provide **long-term institutional support** in one or more of the following areas:
 - physical research infrastructure (e.g., equipment, facilities);
 - institutional research support and personnel (e.g., sponsored program offices, tech transfer offices, administrative and technical support);
 - programmatic support to research faculty and students (e.g., reduction of faculty teaching loads, training in DoD grants and contracts; incentives to conduct DoD-relevant research); and/or
 - business information technology support (i.e., establishment or updates in grant management systems).

Increase Funding for Capacity Building at HBCU/MIs (cont.)

RECOMMENDATION 1C. Additional funds requested and appropriated for HBCU/MI institutional capacity building should be deployed to put military departments' S&T program offices in more direct contact with HBCU/MIs (e.g., using the Military Department Multidisciplinary University Research Initiative competition process as a model).

These additional funds, with more discretionary authority on allowable institutional costs, would be generally aimed at long-term capacity building (not discrete short-term research projects).

Improve Data Collection and Evaluation

RECOMMENDATION 3A: Data Collection and Evaluation

- All military departments/defense agencies should collect and analyze HBCU/MI research and research capacity data to inform decision making and assess the impact of DoD investments. Data collection and analysis should be continual and consistent across military departments/agencies so the data can be analyzed and to the extent practical, be compatible with and included in national databases.

RECOMMENDATION 3B: Proposal Data Collection and Evaluation

- To increase the coordination of data collection, USD(R&E)—in collaboration with the military departments, defense agencies and the director of the Defense Technical Information Centers—should develop guidelines for data collection on defense research and institutional capacity at HBCU/MIs.
- A directive should be issued by USD(R&E) to ensure the coordination of data collection and codify the guidance. Existing databases should be used to provide access to DoD proposal data, so that funding trends for HBCU/MIs can be compared with other IHEs in a systematic and ongoing manner.

Improve Data Collection and Evaluation (cont.)

RECOMMENDATION 3C: Research Capacity Data Collection and Evaluation

- The Undersecretary of Defense for Research and Engineering (USD(R&E)) should work with the military departments/defense agencies and institutions of higher education to:
 - 1) Define the components of research capacity for institutions of higher education (including HBCU/MIs) that are of greatest interest to DoD,
 - 2) Determine areas for data collection on institutional research capacity (e.g., administrative support, research infrastructure, teaching loads),
 - 3) Develop metrics to help evaluate, track, and improve institutional growth and competitiveness,
 - 4) Support future data analyses that assess the impact of DoD investments on building research capacity at HBCU/MIs.

Foster True Partnerships

RECOMMENDATION 4A: USD(R&E) should move past encouragement of partnerships to incentivizing mutually beneficial *true* partnerships by adding an element to award evaluation criteria that assigns value (or some other metric) for including HBCU/MIs as true research partners. Weighted grant or contract solicitation evaluation criteria for proposals that include true HBCU/MI research partnerships could serve as a sample incentive.

RECOMMENDATION 4B: USD (R&E) contracts with *true* partnerships should include increased funding to support the partnership and longer performance periods to allow for capacity building at the HBCU/MI.

RECOMMENDATION 4C: USD(R&E) should examine opportunities to incentivize the defense industry to support HBCU/MI capacity building.

RECOMMENDATION 4D: USD (R&E) should establish a data or descriptive tool as a resource that regularly captures the STEM research capabilities and technical disciplines of HBCU/MIs can aid in developing research and educational collaborations between DoD-funded entities and HBCU/MIs. Such information will help match research needs with available HBCU/MI talent and facilities.

Foster True Partnerships (cont.)

RECOMMENDATION 5: To further highlight opportunities to partner with HBCU/MIs, the Undersecretary of Defense for Research and Engineering (USD(R&E)) should examine and highlight HBCUs/MIs with close proximity to DoD R&D Centers and other DoD entities. USD(R&E) should also look to Defense Established Program to Stimulate Competitive Research (DEPSCoR)/Established Program to Stimulate Competitive Research (EPSCoR) programs, which may serve as models to expand research capacity in areas with low participation, such as is the case for many Tribal Colleges and Universities.

RECOMMENDATION 6: To identify HBCU/MIs with STEM research capabilities that are relevant to DoD research, the Undersecretary of Defense for Research and Engineering (USD(R&E)) should compile a list of HBCU/MI institutions that have received STEM funding from other federal agencies. This list should include data on HBCU/MI graduate programs, majors offered, and research capabilities. The information should be maintained regularly.

Incorporate Promising Practices and Programs

RECOMMENDATION 7: By FY 2024, USD(R&E) with the military departments/defense agencies should review the programs and practices of other government agencies (e.g., NSF, NIH) relevant to increasing research capacity at HBCU/MIs. The results of the review should be shared widely within DoD, the White House Office of Science and Technology Policy, and Congress. In addition to examining the practices of other federal agencies, USD(R&E) should identify opportunities to strengthen collaboration with those agencies and seek interagency leveraging opportunities to build capacity at HBCU/MIs.

RECOMMENDATION 8: USD(R&E) should immediately direct current workforce development programs, such as the SMART program and other scholarship and fellowship programs, to increase HBCU/MI representation in the DoD S&T workforce, with a goal to increase proportional representation by FY2025. DoD should also examine opportunities through and in collaboration with other federal agencies to expand HBCU/MI representation in the federal STEM workforce.

Recommended Actions:

- USD(R&E) should collaborate with NSF to expand the DoD Access and Support for Successful Undergraduate Research Experience (ASSURE) program to two- and four-year HBCU/MIs in order to attract more students into graduate degree programs. USD(R&E) and military departments should also expand the ASSURE program to make it possible for HBCU/MI principal investigators to obtain research supplement awards for adding undergraduate student researchers to current DoD grants.
- USD(R&E) should examine opportunities to leverage or collaborate with the National Science Foundation to expand its Tribal Colleges and Universities Program (TCUP) to promote STEM research and accelerate capacity-building at these institutions.

Study Committee

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Thank you

- Project Page
 - <https://www.nationalacademies.org/our-work/defense-research-at-historically-black-colleges-and-universities-and-other-minority-serving-institutions>
- Download 2022 Final Report
 - <https://nap.nationalacademies.org/catalog/26399>